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JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **11136025 A**
 (43) Date of publication of application: **21.05.1999**

(51) Int. Cl. **H01Q 13/08**

H01Q 1/24, H01Q 1/38, H01Q 1/50, H01Q 5/01, H01Q 21/30,
 H01Q 23/00

(21) Application number: **10204902**
 (22) Date of filing: **21.07.1998**
 (30) Priority: **26.08.1997 JP 09229590**

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(54) **FREQUENCY SWITCHING TYPE SURFACE MOUNTING ANTENNA, ANTENNA DEVICE USING THE ANTENNA AND COMMUNICATION UNIT USING THE ANTENNA DEVICE**

(57) Abstract:

PROBLEM TO BE SOLVED: To provide an antenna which can cope with plural frequency bands by switching the grounded and non-grounded states of a control electrode that is placed near the open end of a radiation electrode via a gap and accordingly switching the resonance frequency of the antenna.

SOLUTION: A ground electrode 3 is formed on the entire surface of on one of both main sides of a rectangular parallelepiped-shape dielectric substrate 2 together with a radiation electrode 4 formed on the other main side of the substrate 2 respectively, and one of both ends of the electrode 4 is grounded. In such a constitution, a surface mounting antenna 1 is produced. The signal inputted to a feeding electrode 6 from a signal source 10 is inputted to the electrode 4 via a 1st gap 5 formed near the open end of the electrode 4. Thus, the electrode 4 resonances as a microstrip line resonator whose one of both ends is opened with the other end

having its short circuit length of $\lambda/4$. A control electrode 8 is placed near the open end of the electrode 4 via a 2nd gap 7, and the grounded and non-grounded states of the electrode 8 are controlled by a switch 9. When the switch 9 is turned on, the capacities generated between the electrode 4 and the electrode 8 are applied in parallel to each other to lower the resonance frequency.

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